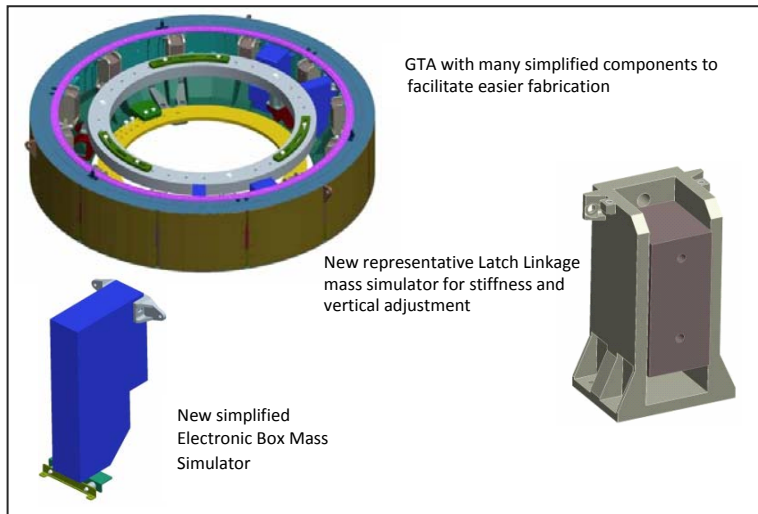


Week ending July 3, 2009

**Two Low Impact Docking System (LIDS) tunnel forgings and two first article segments were received from Jorgenson Forging Company.** One of these forgings (Photo bottom left) will be used to fabricate the tunnel for the Orion Ground Test Article (GTA). The LIDS EDU54 load ring has been removed from the EDU54 Soft Capture System. The ring will be tested for static and dynamic accuracy in Building 9 at the Johnson Space Center. The rewiring on the EDU54 is proceeding without the load ring and will be completed in time for the dynamics testing scheduled to begin in August. The LIDS GTA Mass Simulator is shown in photo below, top right.



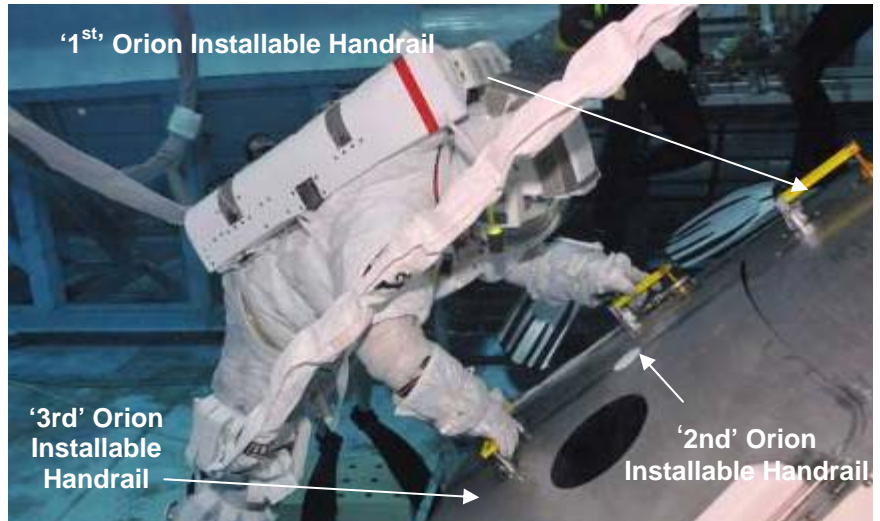
**Progress continues in the crew module propulsion engine loads capability risk reduction testing.** The objectives of the test are to better understand the risk associated with the high vibration loads (ascent and abort) on the thruster, the capability of the heritage design (MR-104D X-38) thrusters to survive high vibration and subsequent hot-fire testing, and finally to provide data for anchoring structural models of the Orion design (MR-104G).

**The Orion EVA-Installable Handrails and Handrail Receptacles were evaluated during several NASA/JSC Neutral Buoyancy Laboratory (NBL) runs (Photos top of Page 2).** The NBL runs, coordinated with NBL and Mission Operations personnel, were planned and sponsored by the EVA System and Orion Projects. The tests focused on operation of the EVA-

Installable Handrails and Handrail Receptacles and evaluated by the suited astronauts along with preliminary Orion Side Hatch operations. During the NBL evaluations, several Constellation Program in-space EVA evaluations (umbilical operations, mobility, etc.) were performed by EVA-experienced crewmembers, including the contingency EVA Altair-to-Orion transfer scenario. During this contingency EVA transfer scenario, astronauts must use in-space, EVA-installable handrails to translate from Altair to the Orion vehicle due to a docking (or other) failure event. The results (being compiled by Orion and the EVA System into a test report) will be used to 'mature' the EVA-Installable Handrail and Handrail Receptacle designs during the Orion development. A higher fidelity Orion mockup is expected to be delivered in fall 2009 to the EVA System for support of the Constellation spacesuit and to provide Orion development support.



**EVA-Installable Handrail**

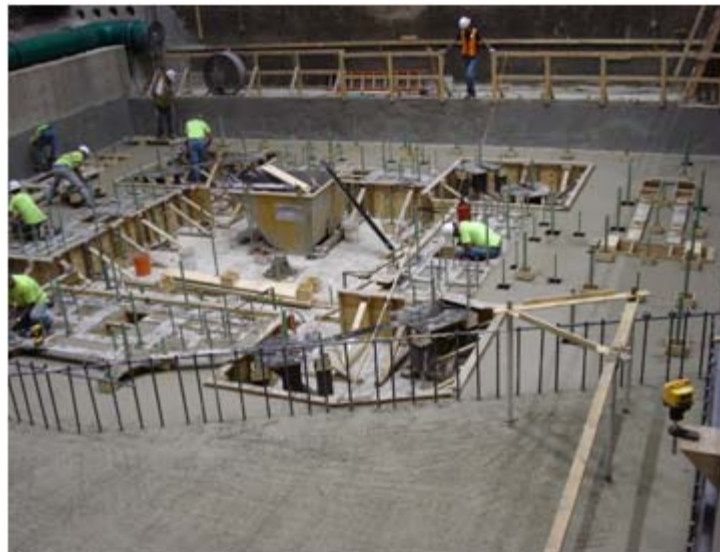


**Simulated Altair-to-Orion Contingency EVA Transfer**

The Launch Abort System PA-1 integration team completed the Flexible Confined Detonating Cord installation and unpacked the Canard. The abort and jettison motor raceway click bond pull tests were completed ahead of schedule.

Orion supported the NASA Engineering and Safety Center (NESC) led testing of the Max Abort Launch System (MLAS) conducted at NASA's Wallops Flight Facility, Wallops Island, Virginia. The unpiloted test was part of an assessment by the NASA Engineering and Safety Center (NESC) of a potential alternate abort system concept which could be used for future piloted spacecraft. The Orion Project provided technical support to NESC throughout the MLAS development. Orion has specific interest in the dynamic responses of the test vehicle during the parachute deployment sequence, and in the overall parachute system performance. This information will be utilized by the Orion CEV Parachute Assembly System (CPAS) team to optimize the final design for the Orion Landing and Recovery System.

The second of four foundation pours in the Mechanical Vibration Facility (MVF) at Plumbrook in Sandusky, Ohio was completed (Photos below at pour start and completion). The installation of the Assembly Highbay 50' x 50' access replacement door is complete. The new Assembly Highbay access door (Photos top of Page 3) will provide protection from weather and foreign object ingress into the assembly area, and assist in providing a clean environment in the Assembly Highbay. NASA Construction of Facilities provided the funding for the access door.







**The new Crew Exploration Vehicle Parachute Assembly System (CPAS) pilot and drogue brackets were installed on the PA1 crew module by the Langley Research Center mechanical team (Photo left). The forward bay systems integration procedures including parachutes and pyro mechanisms continued to be refined and confidence testing of CPAS systems continues.**